

SYSTEMATIC NOTES AND DESCRIPTIONS OF SOME WEEVILS OF ECONOMIC OR BIOLOGICAL IMPORTANCE.

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1. THE MORE IMPORTANT COTTON WEEVILS.

The discovery of a new cotton-square weevil in Peru and of a cotton flower weevil in the Philippines makes it necessary for us to again resort to the older name of Mexican cotton-boll weevil for *Anthonomus grandis* Boheman. The weevil from Peru, *Anthonomus vestitus* Boheman, may be known as the Peruvian cotton-square weevil, and the new Philippine weevil may receive the name of Philippine cotton flower weevil.

ANTHONOMUS GRANDIS Boheman.

The Mexican cotton-boll weevil is well known on account of the great amount of literature written upon it. It is a blackish piceous weevil with gray pubescence and without distinct patterns, except a denser band of scales on the median line of the thorax. The vestiture of the under surface is much denser than that of the upper surface. The femora have two teeth, a large one and a small one. The pygidium is rather freely exposed. The funicle is 7-jointed, the second joint being longer than the third. The claws are armed with a long slender tooth. The ventral segments are slightly unequal, the fifth being generally longer than either the third or fourth. It varies in size from 2.5 mm. to 6.7 mm., and the color of the vestiture varies from gray to brownish, while the integument varies from light piceous to black.

The pupæ of *Anthonomus grandis* are readily recognized by the quadrate tubercles on the prothorax and the shape of the caudal process.

ANTHONOMUS VESTITUS Boheman.

The Peruvian cotton-square weevil has just appeared in our economic literature,¹ and again Mr. C. H. T. Townsend is the

¹ Charles H. T. Townsend. The cotton-square weevil of Peru and its bearing on the boll-weevil problem in North America. *Journal of Economic Entomology*, vol. 4, No. 2, pp. 241-248, April 17, 1911.

first to give a preliminary treatment of its life history. His early contribution to the knowledge of the boll weevil is noted for its thoroughness, and it is therefore a matter of congratulation that Mr. Townsend is in a position to take up the study of this weevil which may have a bearing upon future work with its greater congener.

A series of 67 specimens bred from cotton squares on the Hacienda Macacará in the Rio Chira Valley, Peru, October 8, 1910, by Mr. Townsend, and 1 specimen from San Pedro de Cumbivira, Peru, September 21, 1910, are before the writer. The series is composed of 38 females and 30 males. The males vary from 3 to 4 mm. in length, 1.4 to 1.8 mm. in width, and 1.2 to 1.5 mm. in length of beak. The females vary from 2.5 to 4 mm. in length, 1.2 to 1.75 mm. in width, and 1.2 to 1.7 mm. in length of beak.

The San Pedro specimen is darker than the others and most nearly answers the description by Boheman which must have been based on a female. The following description is therefore based upon this specimen:

Female.—Oblong-ovate, convex, blackish piceous, rather closely clothed with whitish, elongate scales, which are more piliform beneath. Head convex, finely punctate, moderately squamose, front depressed, with medium carina between eyes extending on beak to the point opposite the attachment of the antennæ. Beak slender, cylindrical, shining, finely punctato-rugulose, lightly squamose only at base, reddish piceous, lightly arcuate, slightly enlarged at tip, over one and one-half times as long as prothorax. Antennal scrobes directed at eyes; scape inserted slightly beyond the middle, slender, clavate, barely reaching the eye, reddish testaceous; funicle seven jointed, reddish testaceous, first joint as long as the two following, clavate, second joint elongate, remaining joints moniliform; club ovate, blackish piceous, with first joint very distinct, pubescence fine. Prothorax transverse, apically truncate, basally bisinuate, base one-half wider than apex, sides convex, converging, impressed before apex; dorsum slightly convex, transversely impressed behind apex, densely but shallowly punctate, clad with elongate white scales. Scutellum broadly ogival, clad with very fine piliform scales. Elytra anteriorly subtruncate, about one-half wider than thorax, a little over twice as long as the thorax, sides almost parallel to posterior third, thence converging, surface convex, regularly punctato-striate, interstices subconvex, smooth; closely covered with scaly vestiture. Body beneath of same color as above, but more densely clothed with finer vestiture. Femora clavate, unidentate, basally flavo-testaceous, the remainder infuscated, squamose; tibiæ slender, flavo-testaceous, almost straight, angulate beneath before middle; tarsi elongate; claws elongate,

cleft. Ventral segments subequal, the fifth slightly longer than third or fourth. Pygidium covered.

This description varies in a few slight particulars from the original,¹ but I do not believe sufficiently to separate it as a new species. The bred specimens from Macacará differ considerably in superficial appearance. They are all lighter in color. The median interstices of the elytra and a triangular area at the base of the elytra are blackish piceous, and the remainder is a reddish piceous. The beak is dark; the legs have practically no infuscation. The pubescence is yellowish and a little denser because less rubbed, and there is a distinct pattern of the vestiture. The thorax has a light median band and lighter sides; the elytra have a dark triangular basal area, a triangular lateral area on each side about the middle, a small basal spot and two small subapical spots. These spots are merely due to the sparser vestiture and are indistinct on the maturer specimens.

The sexes are readily distinguished. The female beak is slender, quite smooth, has very little pubescence at the base, is regularly but slightly arcuate and has the scape inserted slightly beyond the middle; the pygidium is rarely visible, apically narrowly truncate and pubescent only at apex; the posterior tibiæ are almost straight, the angle opposite the femoral tooth being almost obsolete. The male beak is stouter, more strongly punctato-rugose, pubescent to the insertion of the antennæ; scape inserted almost at apical third; beak arcuate at point of insertion of antennæ; the pygidium is usually visible, broadly truncate at apex and pubescent except in narrow strip

¹ The original description is as follows:

Anthonomus vestitus Boheman.

Oblongo-ovatus, convexus, nigro-piceus, squamis piliformibus, cinereis dense vestitus; pedibusque flavo-testaceis; femoribus clavatis, subtus unidentatis, apice late infuscatis; rostro prothorace fere duplo longiore, leviter arcuato; prothorace subconico, confertim punctulato; elytris ferrugineis, medio-criter punctato-striatis, interstitiis sub-convexis, lævibus.—Long. $3\frac{1}{2}$, lat. 2 millim.

Patria: Insula Puna.

A. *Umi* magnitudine æqualis. Caput parvum, rotundatum, modice convexum, nigro-piceum, subtiliter, crebre punctulatum, squamis setiformibus cinereis dense vestitum. Oculi parvi, rotundati, convexi, nigri. Rostrum prothorace fere duplo longius, tenue, cylindricum, leviter arcuatum, piceum, punctulatum, apice dilutius, basi parce cinereo-squamosum, leviter longitudinaliter carinatum. Antennæ ad medium prothoracis pertingentes, tenues, pallide testaceæ, clava ovata, fusca, cinereo-pubescente. Prothorax latitudine postica brevior, apice truncatus, antè angustior, pone apicem oblique, dein basin versus parum ampliatus, basi bisinuatus, superne convexusculus, nigro-piceus, crebre punctulatus, squamis piliformibus cinereis dense vestitus. Scutellum parvum, dense cinereo-squamosum. Elytra antice subtruncata, prothorace dimidio latiora et duplo longiora, humeris parum elevatis, rotundatis; lateribus inflexa, ultra medium perparum ampliata, apice conjunctim rotundata, superne convexa, postice declivia, medio-criter, regulariter punctato-striata, interstitiis sub-convexis, lævibus; ferruginea, squamis piliformibus cinereis dense obsita. Corpus subtus nigro-piceum, punctulatum, dense cinereo-squamosum. Pedes longiseuli, flavo-testacei, cinereo-squamulosi; femoribus clavatis, basi excepta, infuscatis, subtus: ante apicem dente parvo, acuto armatis; tibiis teretibus, sub-rectis. Kongliga Svenska Fregatten *Eugenies* Resa Omkring Jorden under befäl C. A. Virgin åren 1851-1853. Vetenskapliga iakttagelser Pa 11. Maj. 1 Konung Oscar den Förstes befallning utgifna af K. Svenska Vetenskaps-Akademien. Zoologi, III. Text: Insekter p. 130, No. 273, Stockholm, 1859.

at base; the posterior tibiæ are straight, but inner edge is regularly emarginate in the median third.

The species belongs to a group not represented in North America, but would rank near the artificial group *Cnemocyllus* Dietz, because of the dissimilarity of the hind tibiæ in the two sexes.

ECTHETOPYGA, new genus.

Name derived from *ἐκθετος* (exposed) + *πυγή* (pygidium).

The following genus belongs in Lacordaire's classification to Curculionides Phanérognaethes Apostasinérides, Phalange I, Section A, Tribu Ménémachides, Groupe Ménémachides vrais. In our modern classification it seems to belong to subfamily Menemachinæ, Tribe Menemachini.

Female.—Beak about as long as thorax, cylindrical, arcuate; scrobes beginning at apical fifth, arcuate and directed at eyes. Antennæ moderately slender; scape attached slightly behind the middle of beak, hardly reaching eyes; funicle with first joint elongate, twice as long as second joint, which is only slightly longer than the third, joints 3-7 short, obconical, increasing in breadth; club very little wider than seventh funicular joint, oblong oval, articulated, the first joint occupying about one-half of the mass, second and third very short. Eyes large, convex, almost round, separated by two-thirds the width of the beak below and by the width of the beak above. Prothorax transverse, slightly convex, sides straight to middle, then roundly narrowed to apex, minutely constricted before apex, base outwardly convex, apex barely half as wide and truncate. Scutellum triangular, roundly truncate at apex, inserted between the elytra. Elytra very slightly convex, oblong, about twice as long as wide, rounded at humeri, and at external, and sutural apical angles; widest near base, slightly wider than prothorax. Pygidium exposed, horizontal, almost flat, evenly rounded behind. Legs moderately robust; femora strongly enlarged, each armed with a large triangular tooth; tibiæ shorter than femora, apically enlarged, compressed, basally arcuate, apically mutic; tarsi moderate, first two joints small, transverse; third longer, bilobed; fourth slender, half included between the lobes of the preceding; claws basally strongly toothed, slender, diverging. Prosternum convex, long in front of coxæ; coxæ globular, distinctly but very narrowly separated, cavities closed behind. Mesosternum transversely strongly depressed in front of coxæ, side pieces large; coxæ rather widely separated, open behind, the intercoxal pieces truncate. Metasternum flat, median longitudinal suture distinct; episterna large; coxæ separated by transverse arcuate piece, cavities open behind. Intercoxal process of first abdominal segment broad, convex in front. First and second abdominal segments large,

connate, the suture slightly arcuate and indicated by a smooth line; remaining segments shorter, the fourth being shortest.

Male.—The male generic characters differ as follows: Beak more robust, slightly shorter, almost straight; scrobes beginning at apical fourth, straight, and directed at eyes. Antennal scape inserted at or slightly beyond middle of beak, reaching eyes; eyes separated by about one-half the width of the beak below and by slightly less than the width of the beak above. Pygidium arcuately truncate at apex. First two abdominal segments connate, suture angulate at middle.

Genotype.—*Ecthetopyga gossypii*, new species.

ECTHETOPYGA GOSSYPHII, new species.

Described from three females and two males taken from a series collected by C. S. Banks on cotton plants from the island of Negros, Philippine Islands (Banks No. 883).

Length, 3–3.5 mm.; breadth, 1.75 mm. Broadly oval, compressed, truncate behind. Color dark brown, with fine golden pubescence, head and beak almost black, underside lighter brown, legs and antennæ still lighter.

Female.—Beak evenly sculptured with oblong punctures, not pubescent. Front with a short longitudinal fovea; finely, evenly punctured, finely pubescent between eyes. Prothorax finely, closely, and evenly punctured and pubescent. Elytral striæ consisting of deeper close-set punctures, but not depressed; intervals closely, finely, and evenly punctured. Underside lighter throughout, punctuation and pubescence sparser. Coxæ and legs yellowish, punctured and pubescent; femoral teeth about equal; tarsi spongy underneath; tarsal claws moderately large, slender, strongly divergent, basally toothed.

Male.—Beak flattened, apically enlarging, laterally and medially tricarinate, rugosely oblongo-punctate. Front foveate.

In form this species resembles very much *Miarus* and *Gymnetron*, but the antennal and unqual characters readily separate it. No nearly related American species are known.

Type.—Cat. No. 14469, U.S.N.M.

2. THE CACTUS WEEVILS.

In view of the approaching publication of a bulletin on cactus insects by W. D. Hunter, J. D. Mitchell and the late F. C. Pratt, the writer has been requested to make a critical study of the cactus weevils formerly grouped under the genus *Acalles*. In view of the description of another species in the same subtribe, it is pertinent to present herewith a table of the genera of the subtribe Tylodina, in the subfamily Cryptorhynchinae now known to occur in the United States.

Key to genera of subtribe *Tylodina*.

Metepisterna very small, usually invisible, not fused with metasternum.

1. Scutellum invisible.

*a*¹. Elytra without humeri; antennal funicle 7-jointed.*b*¹. Second ventral segment at least as long as the third and fourth together.

*c*¹. Second ventral segment considerably longer than third and fourth together; femora mutic; eyes separated by at least the width of the beak; vestiture spongy; prothorax prolonged over head; ocular lobes very prominent, covering eyes (type, *L. solitarius* Boheman). . . . *Lembodes* Schönherr.

*c*². Second ventral segment not much longer than the third and fourth together; femora mutic; eyes separated by the width of the beak (type, *T. armadillo* Sahlberg). *Tylodes* Schönherr.

*b*². Second ventral segment not as long as the third and fourth together.

*d*¹. Second ventral segment much longer than either the third or fourth; tarsal claws very small, approximate.

*e*¹. Antennal club annulated only near tip; first abdominal segment with deep, polished triangular impression; tibiae straight; intercoxal process of abdomen triangular (type, *E. pyriformis* LeConte).

..... *Eurhoptus* LeConte.

*e*². Antennal club annulated; elytra 9-striate; first abdominal segment squarely truncate behind; at least front tibiae bisinuate within; eyes separated at least by width of beak; intercoxal process truncate; scales intermixed with bristles (type, *A. camelus* Fabricius).

..... *Acalles* Schönherr.

*d*². Second and third ventral segments subequal; femora unarmed; eyes rounded above, acute beneath, closer together than width of beak; scrobes directed at lower corners of eyes; scales not intermixed with bristles (type, *G. bifasciata* Gerstæcker). *Gerstæckeria* Champion.

*a*². Elytra with rectangular humeri; funicle 7-jointed.

*f*¹. Eyes separated by width of beak; femora dentate; scales intermixed with bristles; second ventral segment longer than either the third or fourth (type, *E. porcellus* Boheman).

..... *Euscepes* Schönherr.

*f*². Eyes separated by less than width of beak; femora usually dentate; ventral segments 2-4 subequal; elytral vestiture not mixed with erect setæ; scutellum sometimes visible (type, *P. bicristatus* Champion). *Pseudomopsis* Champion.

2. Scutellum visible; funicle 7-jointed; ventral segments 2-4 subequal; elytra 10-striate; femora mutic; claws divergent; humeri absent (type, *P. notatus* Schönherr). *Pseudomus* Schönherr.

Genus GERSTÆCKERIA Champion.

All of the cactus weevils at present known belong to this genus. The type is *Acalles bifasciatus* Gerstæcker. A close study of the material in the United States National Museum leads the writer to divide the genus into four subgenera or species groups.

Key to subgenera.

1. Elytra with a post-humeral prominence; eyes well separated; femora unarmed.

*a*¹. Antennæ inserted toward the apex of the beak (type, *X. inflata* Champion).

..... *Xenosomina*, new subgenus.

*a*². Antennæ inserted at middle of beak; scrobes directed beneath beak; scape short, not reaching eyes; tarsal claws minute, parallel (type, *O. hubbardi* LeConte). *Opuntiaphila*, new subgenus.

2. Elytra without post-humeral prominence; eyes narrowly separated; femora unarmed.
- b¹. Third tarsal joint scarcely wider than the second; alternate interspaces of elytra more densely scaly; prothorax carinate; tarsal claws large, divergent (type, *G. bifasciata* Gerstæcker)..... *Gerstæckeria*, sens. str.
- b². Third tarsal joint obviously wider than second; alternate interspaces not more densely scaly (type *P. nobilis* LeConte)..... *Philopuntia*, new subgenus.

XENOSOMINA, new subgenus.

Xenosomus CHAMPION, Biol. Centr.-Amer., Coleoptera, vol. 4, pt. 4, p. 469.

The characterization of this subgenus and designation of type are included in the table to subgenera, preceding.

Key to species.

1. Elytra strongly nodulose, subglobose; prothorax strongly constricted, *inflata* Champion.
2. Elytra feebly nodulose, less globose; prothorax less strongly constricted, *turpis* Champion.

GERSTÆCKERIA (XENOSOMINA) INFLATA Champion.

This species is recorded from San Gerónimo, Guatemala.

GERSTÆCKERIA (XENOSOMINA) TURPIS Champion.

This species is recorded from Cerro Zunil, Guatemala.

Nothing is known of the habits of these species. They were included by Champion in Fausts' genus *Xenosomus*, but differ in several respects from that genus. They may possibly merit generic rank.

OPUNTIAPHILA, new subgenus.

The characterization of this subgenus and designation of type are included in the table to subgenera, preceding.

Key to species.

1. Elytral foveae isolated and rounded *hubbardi* LeConte.
2. Elytral foveae coalescent..... *dilatata* Casey.

It is the writer's opinion that Colonel Casey's species is merely a sculptural variant of *hubbardi*, which is quite variable in the development of its humeral tubercles. Both species are strongly marked with white post-humeral and post-median transverse bands.

GERSTÆCKERIA (OPUNTIAPHILA) HUBBARDI LeConte.

This species was found by H. G. Hubbard breeding in the joints of *Opuntia vulgaris* following injury by *Melitara prodenialis* Walker. The species is at hand from Crescent City and Lake Worth, Florida, and from Selma, Alabama.

GERSTÆCKERIA (OPUNTIAPHILA) DILATATA Casey.

This species is described from Florida.

GERSTÆCKERIA, sens. str.

The characterization of this subgenus and designation of type are included in the table to subgenera, preceding.

Key to species.

1. Elytra tessellate; body robust.....*tessellata*, new species.
2. Elytra fasciate.
 - a¹. Elytra oval; prothorax as long as wide.
 - b¹. Femora mottled on basal two-thirds, white on apical third; elytral fasciæ irregular.....*profusa* Casey.
 - b². Femora covered with golden white scales, the middle and hind pairs with a dark band before the apex; elytral fasciæ regular.....*bifasciata* Gerstæcker.
 - a². Elytra inflated; prothorax wider than long; femora covered with dark scales, speckled with white, with a white ring before the apex, apex black,

alternata, new species.

GERSTÆCKERIA (GERSTÆCKERIA) TESSELLATA, new species.

Cheyenne, Wyoming, April 24, Soltau collection (two specimens).

Length, 7.5–8 mm. Black; legs piceous-black; scaly vestiture black and yellowish-white, tessellated. Beak long, densely rugosely punctate, carinate. Front longitudinally sulcate; eyes separated by about one-half the width of the beak. Head and basal third of beak clothed with yellowish scales. Prothorax as long as wide, strongly carinate, widest at middle, strongly constricted at apex; strongly, reticulately or confusedly punctate, the punctures largest at base and sides, smallest at apex; vestiture extremely sparse. Elytra wider at base than prothorax, oval; alternate elytral interspaces slightly wider and much more densely clothed; stria punctures large, quadrate, each bearing a small quadrate scale, separated by partitions not as high as the interspaces; vestiture consisting of white and black tessellations. Femora clothed with brown scales with a white band before apex; tibiae clothed with white. Femora unarmed; tarsal claws widely divergent. Venter moderately punctate, clothed with light and dark scales; second ventral segment slightly longer than third or fourth.

There is also at hand one specimen labeled Colorado Springs, Colorado, June 15–30, 1896, H. F. Wickham, 6,000 to 7,000 feet.

Type.—Cat. No. 14470, U.S.N.M.

GERSTÆCKERIA (GERSTÆCKERIA) PROFUSA Casey.

Texas, Belfrage and Soltau collections (five specimens).

No records of the habits of this species can be found.

GERSTÆCKERIA (GERSTÆCKERIA) BIFASCIATA Gerstæcker.

This species was described from Mexico. It is recorded in the Biologia Centrali-Americana from Zimapan in Hidalgo. Ehrenberg found it in numbers on Cactus.

Four specimens were bred November 1, 1910, from *Echinocactus setispinus*, collected in June at San Antonio, Texas, by F. L. Lewton.

GERSTÆCKERIA (GERSTÆCKERIA) ALTERNATA, new species.

Fort Grant, Arizona, July 15, Hubbard and Schwarz (two specimens).

Length, 10 mm. Black; antennæ and legs piceous; scaly vestiture mottled black, piceous brown, and whitish. Beak long, densely rugosely punctate, carinate. Front longitudinally sulcate; eyes separated by about one-half the width of the beak; head and basal fourth of beak densely clothed with creamy-white and light-brown scales with a chocolate-brown patch over each eye. Prothorax a little wider than long, medially carinate, widest behind middle, strongly constricted at apex; strongly reticulately or confusedly punctate, the punctures becoming smaller and shallower toward apex; clothed with piceous scales with a few scattered whitish and light-brown dots. Elytra not wider at base than prothorax, but almost twice as wide as prothorax from basal fourth to apical fourth; alternate elytral interspaces slightly wider and much more densely clothed; stria punctures large, quadrate, shining, each bearing a piceous scale and separated by partitions not as high as the interspaces; vestiture mainly composed of tessellations of black and piceous-black scales with an occasional light-brown scale and with a definite post-humeral spot of white and brown and an irregular transverse white fascia just before the apical declivity; declivity more strongly marked with brownish scales. Femora strongly mottled with chocolate, brown and white, but with definite white subapical bands; tibiæ clothed with white, but with base and apex dark. Femora unarmed; tarsal claws long and slender and strongly divergent. Venter moderately punctate, clothed with chocolate-colored scales with pale longitudinal bands on each side and in the middle. Second segment slightly longer than third or fourth.

Type.—Cat. No. 14471, U.S.N.M.

PHILOPUNTIA, new subgenus.

The characterization of this subgenus and designation of type are included in the table to subgenus, preceding.

Key to species.

1. Elytra with a very evident white cruciform or T-shaped post-median fascia.

a¹. Prothorax carinate (see also *fasciata* Pierce).

b¹. Beak sparsely punctate, except at base; elytral intervals narrow; stria punctures coarse.

c¹. Length 5 mm. *laseleuci* Champion.

c². Length 8 mm. *lacti* Champion.

b². Beak strongly punctate throughout; elytral intervals broad; femora dark, annulate with golden brown. *nobilis* LeConte.

a². Prothorax not carinate; beak closely and coarsely punctate; elytral intervals broad; femora annulate. *cruciata* Champion.

2. Elytra without an evident white cruciform post-median fascia.

d¹. Prothorax trisulcate at base.e¹. Vestiture variegated with larger white scales above.*curvilineata* Champion.e². Vestiture without white scales above.....*tolucana* Champion.d². Prothorax not trisulcate at base.f¹. Prothorax more or less transverse.g¹. Elytra clothed with brown and black scales with prominent spot of black scales at middle of fourth interspace.*lineatocollis* Champion.g². Elytra otherwise clothed.h¹. Prothorax comparatively small; elytra at least one-half wider; claws at least moderately divergent.i¹. Elytra black with brownish basal spot and post-median vitta; sutural intervals apically brownish.....*basalis* LeConte.i². Elytra without basal spots but sometimes with faint post-humeral vitta and more or less distinct post-median vitta.j¹. Length 6-7 mm.....*porosa* LeConte.j². Length 4 mm.....*clathrata* LeConte.h². Prothorax large, about as wide as elytra.k¹. Elytral interspaces wide.l¹. Claws slender and widely divergent; beak rugosely punctate and carinate; elytra with post-humeral and post-median fasciæ.....*opuntiae*, new species.l². Claws small and approximate; beak rather short, very finely punctate, not carinate; elytra with post-sutural spot and post-median brownish T-shaped fascia; punctures shallow.....*fasciata*, new species.k². Elytral interspaces rather narrow; claws moderately divergent; beak short, punctate; elytra mottled, and with strong humeral spots and post-median fascia.*cactophaga*, new species.f². Prothorax distinctly longer than wide.....*turbida* LeConte.

GERSTÆCKERIA (PHILOPUNTIA) LESELEUCI Champion.

Vera Cruz, Mexico; Juquila (Oaxaca), Mexico (Champion).

GERSTÆCKERIA (PHILOPUNTIA) LACTI Champion.

Campeche (Yucatan), Mexico (Champion).

GERSTÆCKERIA (PHILOPUNTIA) NOBILIS LeConte.

Described from the Boll and Belfrage collections, Texas. Breeds in the lateral margins of the joints of *Opuntia engelmanni* and causes great masses of black excrement and gum to form on the outside of the joint. It has been taken at College Station, Victoria, Beeville, San Antonio, Floresville, Encinal, Hondo, Corpus Christi, and Live Oak County, Texas.

GERSTÆCKERIA (PHILOPUNTIA) CRUCIATA Champion.

Toxpan (Vera Cruz) and Mexico City, Mexico (Champion).

GERSTÆCKERIA (PHILOPUNTIA) CURVILINEATA Champion.

This species is described from Mexico (Champion).

GERSTÆCKERIA (PHILOPUNTIA) TOLUCANA Champion.

This species is described from Toluca, Mexico (Champion).

GERSTÆCKERIA (PHILOPUNTIA) LINEATOCOLLIS Champion.

This species is described from Sierra de Durango, Mexico (Champion).

GERSTÆCKERIA (PHILOPUNTIA) BASALIS LeConte.

This species is described from Colorado. Specimens are at hand from Denver, Greeley, Cañon City, and Sedalia, Colorado, and Cheyenne, Wyoming. Specimens were taken on *Opuntia* in Sioux County, Nebraska, by Dr. R. H. Wolcott.

GERSTÆCKERIA (PHILOPUNTIA) POROSA LeConte.

This species is either very variable in color markings or else there is a large number of extremely closely related species, which at present the writer prefers to call geographical races. Specimens are at hand from Kansas; Denver, Colorado Springs, and Sedalia, Colorado; Albuquerque and Mesilla Park, New Mexico; Fort Grant, Arizona; San Diego, Floresville, Live Oak County, D'Hanis, and Hondo, Texas. The species breeds in flat cells in the large flat-leaved *Opuntias*.

GERSTÆCKERIA (PHILOPUNTIA) CLATHRATA LeConte.

This species was described from Colorado. It is at hand from Colorado Springs, Colorado; Santa Rita Mountains, Arizona; San Diego, Laredo, Hidalgo, Uvalde, and Brownsville, Texas. The species breeds in the stem of *Opuntia leptocaulis* and is sometimes so numerous that it causes great bumpy deformations of growth.

GERSTÆCKERIA (PHILOPUNTIA) OPUNTIAE, new species.

Encinal, Texas, April 10, 1908, under *Opuntia*, J. D. Mitchell (two specimens).

Length, 6 mm. Black, with antennæ and legs piceous-black; vestiture consisting of white, yellowish, and brownish scales. Beak shining, carinate, strongly, rugosely punctate; front sulcate, eyes separated by one-half the width of the beak. Head and base of beak clothed with white scales, which are a little darker at vertex. Prothorax large, transverse, strongly convex, much narrowed to apex, shining, deeply and closely punctate; vestiture brown, with a few scattered paler scales. Elytra oval, barely one-third wider than prothorax; stria punctures large, round, squamigerous, rather shallow;

interspaces wide; vestiture mainly brown, with a paler subbasal and a postmedian fascia, and with sutural interspaces lighter brown. Femora indistinctly annulate; claws slender, divergent. Venter moderately, shallowly punctate, sparsely clothed; second segment a little longer than third or fourth.

Specimens are also at hand from Encinal, Texas, April 18, 1906, J. D. Mitchell.

Type.—Cat. No. 14472, U.S.N.M.

GERSTÆCKERIA (PHILOPUNTIA) FASCIATA, new species.

Buck Key, Florida, G. Brainard (one specimen).

Length, 5.5 mm. Black, antennæ rufous; legs piceous-black; vestiture white, golden, and brown; beak moderately long, shining, finely punctate, not carinate; front strongly foveate; eyes separated by one-half the width of the beak; head clothed with golden or cream-colored scales. Prothorax large, sides strongly convex, rather shallowly punctate with smooth spots on sides; median line impunctate; vestiture golden, with a few white dots. Elytra inflated at basal third, thence tapering to apex, not one-half wider than prothorax; striae punctures large, very shallow, interspaces as wide as punctures; vestiture golden, condensed at base of third interspace, also on the apical half of sutural interspace and in a transverse postmedian vitta crossing this; prominent spots of white scales behind humeri on fourth to seventh interspaces; brown scales bordering fasciæ. Femora annulate; tarsal claws approximate; venter clothed with golden scales.

Type.—Cat. No. 14473, U.S.N.M.

GERSTÆCKERIA (PHILOPUNTIA) CACTOPHAGA, new species.

Point Isabel (near Brownsville), Texas, May 11, 1904, H. S. Barber (four specimens).

Length, 6 mm. Black, antennæ brownish, legs piceous-black; vestiture whitish, yellowish, and brown. Beak short, shining, punctate, carinate. Front sulcate; eyes separated by one-half the width of the beak. Head and basal half of beak densely clothed with whitish scales. Thorax as in preceding species, but with a median longitudinal white stripe at base and four white dots on the apical half arranged in a square in the line with the eyes. Elytra very little wider than prothorax, interspaces narrow, punctures round, moderately deep; vestiture piceous, but with large humeral brown spots more or less connected across entire base by light scales, and with a wavy white postmedian fascia and with declivity more or less marked with light scales; sutural interspace light brown. Femora annulate, mutic; tarsal claws divergent. Venter clothed with light-brown scales.

Type.—Cat. No. 14474, U.S.N.M.

GERSTÆCKERIA TURBIDA LeConte.

Specimens are on hand from Tucson, Catalina Springs, and Fort Grant, Arizona, all from the Hubbard and Schwarz collection.

3. MISCELLANEOUS NEW SPECIES OF BIOLOGICAL INTEREST.

The three following species are described in this paper because of their being associated with known plants, which, of course, makes them more interesting. They are also very interesting species in themselves, the last two representing new genera for our United States fauna.

ANTHONOMUS MIEPHONUS, new species.

Name derived from *μαῖφνος*, blood-stained.

Described from a series of six specimens collected June 22, 1894, at Round Knob, North Carolina, from the Hubbard and Schwarz collection, beaten from bushes of mountain laurel (*Rhododendron*).

This species belongs to the *signatus* group near *sulcifrons* and *sexguttatus*. It is the largest member of the group.

Length, 2.7 mm. Robust, oval. Black, rufo-piceous at tip of mandibles, on antennal scape and funicle, and tarsi; legs darker piceous; elytra dark red with base and suture, and sometimes denuded spot darker. Pubescence pale yellowish, very fine and scant above, except on scutellum and somewhat condensed in spots around the denuded fascia; more densely clothed beneath with fine squamiform hairs.

Beak moderately slender, curved, subopaque, coarsely striato-punctate; median carina distinct to apex; female beak longer than in male. Antennæ rufo-piceous or testaceous, with club dark; inserted at apical third in male and two-fifths in female; first joint elongate, as long as second and third; second joint equaling third and fourth combined; joints 3-7 globose, subequal, becoming slightly wider; club densely and finely pubescent, oval, almost equaling last six funicular joints. Eyes convex, free behind. Head convex, finely rugulose with a few remote piliferous punctures; front distinctly sulcate between the eyes, sulcus extending to base of beak. Prothorax wider than long; base one-half wider than apex; sides broadly rounded, plainly constricted before apex; transversely impressed in front, small round depression at sides of disk at basal third; coarsely, closely, and deeply punctured throughout; pubescence condensed along basal margin. Elytra one-third wider at base than prothorax, suboval, very convex on median line, a trifle wider posteriorly; sides almost straight to posterior third, slightly constricted behind humeri; striæ impressed, punctures moderately large, round, and closely approximate; interspaces slightly convex with an irregular row of minute setigerous punctures; scutellum

elongate oblong, densely pubescent. Legs not very slender; femora clavate, each armed with small acute tooth, and strongly constricted beyond the latter; tibiæ in both sexes feebly sinuate internally. First two tarsal joints longer than wide.

The species differs from *sulcifrons* by its larger size, coloration, coarser thoracic punctuation, pygidium freely exposed in both sexes, tarsal joints longer than wide, and by the condensed spots of pubescence on the elytra. From *sexguttatus* it differs also by its large size and coloration, coarser thoracic punctuation, length of second funicular joint, and by the tooth on the posterior femora. It bears a superficial resemblance to *virgo* and *rufipennis*, but is separated by many characters.

Type.—Cat. No. 14475, U.S.N.M.

CHIONANTHOBIUS, new genus.

This genus belongs to the subfamily Tychiinae, tribe Plocetini, and is most nearly related to *Thysanocnemis*, from which it is separated by having the fourth ventral suture distinct and the beak carinate.

Beak slender, cylindrical, arcuate, separated from front by a deep concavity. Antennal scrobes directed at lower portion of eyes; scape attached beyond middle, elongate; funicle 7-jointed, joints elongate, the first longest, following joints diminishing in size; club elongate, jointed; eyes very narrowly separated above. Prothorax strongly narrowed in front. Scutellum ogival. Elytra wider than thorax; humeri rounded. Pygidium partly exposed, vertical. Front coxæ contiguous, middle coxæ narrowly separated; hind coxæ widely separated. Thoracic side pieces large. First ventral suture indistinct, second and third laterally angulate, but not completely covering following segments. Femora with a faint indication of a tooth; tibiæ unguiculate; third tarsal joint spongy beneath; tarsal claws cleft into two strong teeth, the inner almost as long as the outer.

Genotype.—*Chionanthobius schwarzi*, new species.

CHIONANTHOBIUS SCHWARZI, new species.

This beautiful species is described from a single individual selected from a long series collected by E. A. Schwarz on Plummer's Island, Maryland, July 6, 1906. According to Mr. Schwarz the weevils feed on the berries of the fringe tree (*Chionanthus virginica*) and the larvæ develop in the seeds of the same tree.

Length, 5.5 mm.; breadth, 2.8 mm. Robust, oval. Color black; head, beak, legs, and antennæ rufous; closely covered with scales which completely hide the body. Beak only scatteringly clad with fine white pubescence; head closely squamose with white and golden scales between the eyes, and with a band of golden scales behind the eyes bordered by a band of white scales; otherwise the head is very sparsely clothed with fine golden pubescence. Prothorax evenly and densely clothed with transversely placed, longitudinal,

recumbent scales, which meet on the median line in a low crest; a few white scales occur on the posterior margin; scutellum densely clad with white scales. The elytral vestiture consists of five irregular transverse color bands, of elongated scales, described as follows: Humeral band golden, broadest over humeri, interrupted by the white scutellum and first interspace, and on the second interspace by a dark brown spot. Post-humeral band white, beginning at base of last interspace, where it narrowly interrupts humeral band; it is slightly interrupted by humeral band on sixth to eighth interspaces, mixed with a few golden scales on remaining interspaces, diagonally interrupting sutural band on first to third interspaces; it is widest on first interspace, where it reaches scutellum. Median band broad, brownish black, projected forward on second interspace into post-humeral band, interrupted on lateral margin by the junction of the white post-humeral and post-median bands; slightly emarginate behind on fifth interspace, triangularly produced behind on eight middle interspaces. Post-median band white, irregular, projecting back on first, third, and fifth more than on adjoining interspaces, and from sixth to margin gradually widening. Apical band golden brown with black spots of varying length behind the white except on second interspace. Pygidium with golden pubescence. Vestiture of venter white, squamose, becoming pubescent behind and mixed with golden; legs with white pubescence.

Beak longitudinally rugose and medially carinate; prothorax with sides almost straight in basal third, then strongly convexly narrowed, strongly constricted before apex. Elytra convex, depressed, about one-half wider than prothorax; striæ evenly punctate, not impressed, stria punctures squamigerous; interspaces flat.

Type.—Cat. No. 14476, U.S.N.M.

TYLODES CLADOTRICHIS, new species.

Described from four specimens bred from roots of *Cladothrix lanuginosa* collected by E. A. Schwarz at San Diego, Texas, December 13, 1895 (U. S. Bureau of Entomology No. 6937).

Length, 6–7 mm.; breadth, 2.5–3 mm. Elongate oval, robust, black, covered with a thick spongy crust of scales of various sizes and shapes.

Beak moderately short, robust, slightly enlarged near base, when in repose hidden in ventral canal, broadly emarginate above at apex, and with a deep emargination at sides exposing attachment of mandibles; longitudinally punctato-sulcate, the punctures provided with broad, erect, ovoidal, brown scales; surface closely clothed with fine appressed, overlapping, dirty brown or gray scales, giving a very spongy appearance; base of beak more closely punctured and bristling with broad rounded erect black scales. Antennal scrobes deep, diagonal, directed at lower part of eyes, strongly constricted behind

attachment of scape, thence widening considerably and sharply outlined; scape attached at about apical fourth, not quite reaching eyes; funicle 7-jointed, the first elongate, about twice as long as second; second elongate, others becoming shorter and more transverse; club elliptical, jointed. Eyes separated above by width of beak, almost completely concealed by ocular lobes when beak is in repose. Head spongily squamose, deeply punctate, bristling with erect black scales. Prothorax with very uneven surface, widest at anterior third, then suddenly narrowed to apex which is one-half as wide as base; apex arcuately projecting over head, ocular lobes prominent, base shallowly concave: vestiture ruffled, with overlapping white, dirty gray or brown scales; erect larger scales of white and black in bristling patches, the black patches arranged in a square at base inclosing four small white patches; front and sides lighter with black scales scattered throughout. Scutellum concealed. Elytra oval, strongly narrowed behind with the suggestion of humeri in projections of the eighth interspaces over the basal angles of the thorax; striæ impressed with large deep punctures each bearing a large, round, concave, striate white scale; interspaces elevated, the odd intervals more so than the alternate intervals; the basal margin is also considerably elevated: vestiture of surface spongy, the odd interspaces bristling with erect scales, the even interspaces with a few; the erect scales brown, white, and black, arranged in transverse fasciæ across the elytra especially in the post-humeral and post-median regions; a white patch of large flat scales connecting the fifth punctures of the fourth and fifth interspaces is quite prominent, as are also black patches of erect scales at the base of the third interspace and on the same interspace between the white patches.

Rostral canal deep, forming an emargination and a pocket in the mesosternum. Mesocoxæ less widely separated than the other pairs. Abdominal intercoxal process large, broad, angulate apically. First ventral segment at center twice as long as second; third and fourth together hardly longer than second; fifth slightly larger, the last three segments deeply inclosed by the elytra. Vestiture beneath close-set, the scales overlapping, dull in color, with larger scales in the punctures; second ventral with two black apical spots, last three segments black pubescent with anterior rows of close-set brownish scales. Legs annulate with the appressed spongy pubescence and bristling with erect scales. Femora slender, mutic; tibiæ basally arcuate, apically strongly unguiculate and with a strong cluster of yellow bristles just below the unguis, apical margin clad with stout black ciliæ; tarsal claws strong, divergent, simple.

This species bears a strong resemblance to *Thecesternus albidus* in form and in its peculiar vestiture. Old specimens will not display the brilliance of the black and white spots as described above.

Type.—Cat. No. 14477, U.S.N.M.